

**IN THE CLAIMS:**

1.-7. (Cancel)

8. (Previously Presented) A recording/reproducing apparatus comprising:

an interface for converting an input signal to binary data;

an interleaver for segmenting the converted binary data into a plurality of data blocks;

a coding circuit for performing the error correcting coding operation for each of said data blocks using an elliptic code on a finite  $GF(2^m)$  where  $m$  is a positive integer, wherein a length of said elliptic code is longer than  $2^m - 1$  and not more than  $2^m + 2^{1+m/2}$ ;

a signal processing circuit for converting the data block subjected to the error correcting coding operation into an analog signal for recording in a recording medium, and converting the analog signal read from said recording medium into binary data; and

a decoding circuit for detecting and correcting an error of the binary data converted by said signal processing circuit using said elliptic code,

wherein said coding circuit comprises:

means for generating redundant symbols based on input symbol stream from said interleaver; and

a selector which selectively outputs the generated redundant symbols.

9. (New) A recording/reproducing apparatus according to claim 8, wherein said means for generating redundant symbols comprises:

a rational point generator which outputs a plurality of points representing a calculative symbol position of code at a timing when said input symbol stream is inputted;

a vector generating circuit which converts said plurality of points from said rational point generator into a value which is same as a number of the redundant symbols;

a matrix calculation circuit which executes matrix calculation on an output of said vector generating circuit;

a scalar multiplier which multiplies each output of said matrix calculation circuit by a value of the input symbol;

a memory which stores said redundant symbols; and

means for adding each output of said scalar multiplier to the redundant symbols stored in said memory and for storing a resultant of the addition into said memory,

wherein said selector selects and outputs said input symbol stream, and then selects and outputs said redundant symbols stored in said memory.

10. (New) A recording/reproducing apparatus according to claim 9, wherein said vector generating circuit generates a vector having values in number of  $(2t+1)$ , where  $t$  is a maximum number of corrected symbols and  $(2t+1)$  is a redundant symbol number.

11. (New) An elliptic coding circuit outputting redundant symbols based on inputted input symbol stream, comprising:

a rational point generator which outputs a plurality of points representing a calculative symbol position of code at a timing when said input symbol stream is inputted;

a vector generating circuit which converts said plurality of points from said rational point generator into a value which is same as a number of the redundant symbols;

a matrix calculation circuit which executes matrix calculation on an output of said vector generating circuit;

a scalar multiplier which multiplies each output of said matrix calculation circuit by a value of the input symbol;

a memory which stores said redundant symbols; and

means for adding each output of said scalar multiplier to the redundant symbols stored in said memory and for storing a resultant of the addition into said memory,

wherein said selector selects and outputs said input symbol stream, and then selects and outputs said redundant symbols stored in said memory.

12. (New) An elliptic coding circuit according to claim 11, wherein said vector generating circuit generates a vector having values in number of  $(2t+1)$ , where  $t$  is a maximum number of corrected symbols and  $(2t+1)$  is a redundant symbol number.

13. (New) An error correcting coding method comprising:

- inputting an input symbol stream;
- outputting a plurality of points representing a calculative symbol position of code at a timing when said input symbol stream is inputted;
- generating a plurality of vectors based on said plurality of points;
- outputting a scalar multiplexed vector which is produced by multiplying every point of said vector by a value of the input symbol stream;
- adding each said scalar multiplexed vector to the redundant symbols stored in a memory and storing a resultant of the addition into said memory; and
- selecting and outputting said input symbol stream, and then selecting and outputting said redundant symbols stored in said memory.

14. (New) An error correcting coding method according to claim 13, wherein in generating a plurality of vectors, a vector having values in number of  $(2t+1)$  is generated, where  $t$  is a maximum number of corrected symbols and  $(2t+1)$  is a redundant symbol number.